The Future of Mobility in the Urban Context

SUSAN ZIELINSKI
Health Effects Institute
Annual Conference
Alexandria, Virginia.
April 30, 2017
The Most Revolutionary Transport Innovation
Wheel
Horse
Dirigible
Steam Train
Plane
Rocket
Bicycle
Dirigible
Steam ship
Bus Rapid Transit
Subway
Jet Pack
Other?
The BUZZ / Poster Children These Days:
(where attention + funds are going)

Self Driving Cars
Connected / Automated / Drones
Shared Use
Technology / Big Data / Apps
Electrification
Other?
Transportation is transforming just about everywhere
WhereIsMyTransport, South Africa
Avego Ride Sharing Technology, Ireland

mobiprize.com
Zagster provides bicycle sharing systems for the world’s leading businesses and institutions. We design, build, and operate solutions to fit your organization’s unique needs and provide a great rider experience.
YOUR RIDE, ON DEMAND
TRANSPORTATION IN MINUTES WITH THE UBER APP

SIGN UP

WANT TO DRIVE WITH UBER?

BECOME A DRIVER

LOG IN

SIGN UP
Chair Lift in Rio

Dr. AM Speradio, Faculdade Jaguariuna
MellowCabs, South Africa
Priyadarshini Taxi Service, India
Bikes On Buses in Bage Rio Grande Do Sul

Dr. AM Speradio, Faculdade Jaguariuna
Eco-Cabs Dial-a-Rickshaw, India
Roadify, USA

Roadify Text Service

B67 Bus to Downtown
Stop: 7ave/12st
Scheduled: 7:50, 8:02
Roadify ETA: 7:56

Please give when it arrives and help others
Hangzhou Omnipay, China

mobiprize.com
A transit revolution fighting for a connected Detroit. "Biofuel-powered transit with a healthy shot of uncommonly good customer service."
Caronettas, Brazil

How does it work?

Passenger

Buy Caronetas from the website
And choose the best option that
Suits its urban trip

Spend” the Caronetas to
Schedule a ride and get
The confirmation N#

In the car, provide to the
driver a ticket (or, conf N#)
to confirm the payment.

Driver

Insert the ticket
On the smartphone
or website

Re Redeem Caronetas
Accumulated by products
and services

The commuters exchanged GHG production by products and services

mobiprize.com
MISTER Guideways, New Zealand, Poland
Electric Tricycles in Blumenau Shopping Centers

Dr. AM Speradio, Faculdade Jaguariuna
Bicycles are the newest amenity!

Make your property more attractive.
Provide on-demand bikes.
We do everything. You do nothing.
Our system arrives two weeks from order.
Ride Amigos Commute Optimization, USA
Rising Pheasant Farms Urban Farming & Sustainable Delivery, USA
Getaround Car Share, USA

Rent a car from someone nearby.
Convenient hourly rentals. Full insurance included.

- Yeti: MINI Cooper
  San Francisco, CA
  $8.50 / hour

- Model S: Tesla Model S
  San Francisco, CA
  $25.00 / hour

- Pluto: MINI Cooper
  San Francisco, CA
  $8.50 / hour

- Midnightmarina: Porsche Cayenne
  San Francisco, CA
  $9.50 / hour

mobi.prize.com
Federal District 235 more kilometers of bike lanes

Dr. AM Speradio, Faculdade Jaguariuna
Tuk Tuk Factory Electric Shuttles, Netherlands
GoMetro, South Africa
Pocket-sized personal transporters could soon be seen on the streets of Tokyo

by SMART on August 7, 2015 in Innovations (InspireMobility), News from the Field, Videos
Provides accessible, high-quality information and analysis to drive informed decision-making in Detroit.
Ford’s definition of Mobility: Accessibility for people, goods and services to go where they need or want safely, efficiently and affordably – providing a simplified and fun customer experience. Our goal is to make mobility affordable in every sense of the word – economically, environmentally and socially.
Flocksourcing Buses, Bangladesh
AUTOLIB PARIS
Banking Boat in Manaus

Dr. AM Speradio, Faculdade Jaguariuna
A Way To Be, South Africa

a way to be anywhere using public transport. buses, trains and teksis.
PHD: Party Hard Drivers, India

If You Party, Party Right. Get A PHD Tonight!

Our uniformed drivers are reliable, professional, trained and capable of driving all cars. Our services are reasonably priced so you no longer need to worry about how to get home after a couple of drinks.

1 Call 7738087500 to book your driver. (Between 12 p.m. and 12 a.m.)
2 Driver reaches your destination. Hand him your keys.
3 Drink responsibly and party hard.
4 Get driven home safe and problem free!

Drinking and Driving is dangerous for health

License To Party 🏠 🌐 📣 📬
The Green Cab, South Africa
Buenos Aires Launches Automated Bike Share

March 3, 2015
Health Care On Boats
(Floating Hospital)

Tapajos River

Dr. AM Speradio, Faculdade Jaguariuna
Relay Rides Peer to Peer, USA

mobiprize.com
Ideophone Apps, India

just launched

TripThirsty

introducing

PYKA
the smart wake-up alarm

mobi.prize.com
Cabcorner Taxi Platform, USA

mobiprize.com
2000’s

E & E recognized that its employees needed a more convenient, easy-to-use tool to find carpool matches and report their commute, which led to the design and implementation of the Web- and map-based system called GreenRide.

mobi.prize.com
Detroit Labs is a team of thinkers, doers, and makers. We dream up and ship beautiful, intuitive apps.
A luxury goods maker located in Detroit creating a community that will thrive through excellence of craft and pride of work. Where we will reclaim the making of things that are made well. And define American luxury through American quality.
MindHelix, India
Thula Lula, South Africa
Moovit, Israel
Neosphere Invisible Bus Bay, India
E2 Community Taxi, USA

mobiaprize.com
IS TRANSPORTATION AT A TIPPING POINT?
Bill Ford:

A future beyond traffic gridlock

TED2011 • 18:48 • Filmed Mar 2011
Subtitles available in 26 languages

View interactive transcript
City Driving On-Demand; Car Swap; Dynamic Social Shuttle; Share Car; Remote Positioning; Ford Carsharing; Painless Parking; Parking Spotter; Data Driven Insurance; Big Data Drive; Info Cycle; Fleet Insights; Rapid Recharge & Share; Data Driven Health Care; LA Parking Lot 2.0; Traffic Tamer; City Mobility; Future of Mobility; Accessory Challenge; Australia Accessory Challenge; Downpour Monsoon App; Sumurr Golden Hour & mHEALTH; Urban Commuter; Mobility Integration...
The European Mobility as a Service Alliance

Working to create a seamless, demand-based travel experience
Launched at the 2015 ITS World Congress in Bordeaux

IT'S TIME TO SPARK MEANINGFUL CHANGE
The India Smart Cities Challenge helps cities get smarter, faster.
META TRANSFORMATION / STEP CHANGE:

SYSTEMS OF SYSTEMS
- how we pull it all together
  - with PEOPLE / THE USER at the core
  - as well as the business, the city, the economy

- Multi-modal, multi-service
  - Door to door
  - Customized + On-demand
- Moving people, moving goods, even moving less

AKA: MOBILITY-AS-A-SERVICE

+ the industry cluster to supply it
MONOCULTURE
MONOCULTURE
MULTI-MODAL
In ecological terms, it should come as no revelation that as cities grow and become more complex and diverse, they begin to create more efficiencies. Ecosystems grow from simple systems with a few pioneering species to more mature ecosystems with diversity and interconnection. Thus, after a fire or flood, or some other disturbance, a cleared piece of land will begin developing the structure of its ecosystem with an emphasis on rapid simple growth. After a period it becomes more diverse and more efficient as it establishes a more complex network of interactions.

PETER NEWMAN
EVOLUTION - DIVERSIFICATION:
FROM MASSIVE MACHINE TO NIMBLE NETWORK
TRANSPORTATION IS FLAT – MORE OPTIONS, MORE CONNECTED
OPTIONS NOT ALTERNATIVES (Women are not Alternative Men)
CONNECTED NETWORKS
OUR MAKER:
Heart? Lung?
Pituitary Gland?
Which do you Choose?
THE WHOLE ENCHILADA
New Mobility is...Like the Ideal Life’s Partner ...

QUALITIES:

☑ Multi-talented
☑ Clean
☑ Connected
☑ Integrated
☑ Smart
☑ Tech savvy
☑ Sophisticated
☑ Confers status
☑ Convenient

☑ Sexy
☑ Innovative
☑ Saves money
☑ Socially equitable
☑ Service-oriented
☑ Creates jobs
☑ Caters to your needs
☑ Accessible to all
What Might It Look Like?
IMPLEMENTATION: THE FOUR SOLITUDES

SERVICE
Car Share / Car Pool / Peer to Peer
Lyft / Uber
Home Delivery
Senior Chauffeur
Auto Rickshaw
Taxi / Pedicab
Etc.

PRODUCT / MODE
Car / Bus / Train
Plane / Boat
Bike / Trike
Shoes / Skates / Skateboards
Etc.

TECHNOLOGY
Fare Payment / Parking
Wayfinding
Traffic Management
Congestion Pricing
Mesh Network / Cloud
Border Crossing / Security
Connectivity / Automation
Etc.

DESIGN / INFRASTRUCTURE / REAL ESTATE
Urban Design
Product Design
Real Estate
Roads
Network Design
Etc.

PERSON / USER / CUSTOMER
✓ New Integration Models
  ✓ New Technologies
  ✓ New Service Models
  ✓ New Business Models
  ✓ New Spatial Models
  ✓ New Eco-Systems
✓ Public Private Innovation
  ✓ New Skills & Jobs
  ✓ New Policy Models
  ✓ New Narratives
✓ Big Business
✓ Small Business
✓ Government
✓ Civil Society / NGO’s
✓ Academe
✓ Citizens
Mobility-As-A-SERVICE (MaaS)

Pulling it all together: Public Private Innovation advancing sustainable future mobility systems and the industries and enterprises to supply them

MaaS = Mobility-as-a-Service
(Service & Product BUNDLING for the citizen)

Connected multi-mode multi-service IT-enabled door-to-door on-demand sustainable equitable mobility bundle

... car share, bike share, transit, shuttle, taxi, informal, trains, boats, planes, connectivity, automation, parking, wayfinding, apps, traffic management, safety, security, measuring, monitoring, moving goods, tele-work, tele-other, sensing, marketing, tourism, learning, gaming, ...

BUSINESS MODELS
ENABLING INFORMATION TECHNOLOGY
PHYSICAL DESIGN, PLANNING INFRASTRUCTURE
SYSTEMS & PRODUCT OPTIMIZATION, ENGINEERING & DESIGN
MARKETING (DECISION MODELS, ATTITUDES, BEHAVIOR)
INNOVATION RESEARCH TECH TRANSFER CAPACITY BUILDING
POLICY & LEGISLATION
IT SEEMS COMPLICATED!

So WHY is this actually happening NOW?
BECAUSE IT NEEDS TO

It is ESSENTIAL to:

✓ Community & Quality of Life

✓ Health

✓ Safety

✓ Economy

✓ Equity

✓ Etc.
IT NEEDS TO ADDRESS PRESSING CHALLENGES – LOCAL + GLOBAL
✓ The Cloud / Big Data
  ✓ Way Finding Apps
  ✓ Fare Payment Apps
    ✓ Parking Apps
  ✓ Integrated Traffic Management Systems (cloud, mobile)
    ✓ Shared Use
  ✓ Automation / self driving capabilities
    ✓ Seamlessness
    ✓ Safety
  ✓ Security + Cyber Security
  ✓ Energy monitoring & saving
    ✓ Other
PRE-DIGITAL CONTRAST

How You May Live and Travel in the City of 1950

Population: 90,000,000

City streets, once narrow, will be 300 feet wide. The top level for pedestrians; the next, tram lines for slow motor traffic; the next for fast motor traffic; and the bottom for electric trains. Giant buildings of several hundred stories half a mile high will house offices, schools, hotels, and departments in concrete towers, while the ends will be airport terminals, according to the architect's plans.
The quest to get a driver's license at 16 -- long an American rite of passage -- is on the wane among the digital generation, which no longer sees the family car as the end-all of social life.

The holdouts include Kat Velkoff, who turned 17 in Chantilly without a license. Focused on tough classes, the debate team, dance and color guard, she turned 18 without taking the wheel. Then 19.

"It just wasn't a priority," said Velkoff, who got her license last year at 20. "It was just never the next thing that needed to get done in my life."

Federal data released Friday underscore a striking national shift: 30.7 percent of 16-year-olds got their licenses in 2008, compared with 44.7 percent in 1988. The difference is even sharper in Virginia and Maryland, state figures show. Numbers from the District, which go back to 2003, show a decline in the past two years.

By Donna St. George
Washington Post Staff Writer
Sunday, January 24, 2010; A01
Because it’s

**AN INVESTMENT (not a cost)**

- REGIONAL COMPETITIVENESS / PRODUCTIVITY
- SAVES MONEY (OPTIMIZATION)
- CREATES JOBS
- A WHOLE NEW MOBILITY INDUSTRY
  Multi-trillion $ global market / industry cluster

**MULTI-TRILLION $ INDUSTRY**

Industry Cluster:
- Automotive; Transit;
- Energy; Real Estate; IT;
- Logistics; Planning & Architecture; Telematics;
- Retail; Tourism; etc…

**ENTERPRISE & TECH TRANSFER**

**SMART MobiPrize**

**ENTREPRENEURSHIP & ENTERPRISE**
Meeting customized local needs. Replicating and scaling globally. Catalyzing investment, building capacity.

**INDUSTRY MOBILIZATION**

- Ford Motor
- Ashok Leyland
- Cisco Systems
- Michelin
- IBM
- Intel
- Infosys
- Mapunity
- Microsoft
- Qualcomm
- Siemens
- Velankani
- Veolia
- etc

**NEW MOBILITY INDUSTRY CLUSTER DEVELOPMENT**

- Scotland
- Finland
- Sao Paulo
- Sweden
- Norway
- Austria
- Barcelona
- etc

**INDUSTRY MOBILIZATION**

- Ford Motor
- Ashok Leyland
- Cisco Systems
- Michelin
- IBM
- Intel
- Infosys
- Mapunity
- Microsoft
- Qualcomm
- Siemens
- Velankani
- Veolia
- etc

**NEW MOBILITY INDUSTRY CLUSTER DEVELOPMENT**

- Scotland
- Finland
- Sao Paulo
- Sweden
- Norway
- Austria
- Barcelona
- etc
CURRENT META-PHENOMENA

- Change is changing faster
- Technology is outpacing policy
- We don’t know what we don’t know
  - We are all the deciders
    - It’s an infinite game
    - It takes an eco-system
SMART APPROACH

From Idea to Reality

A Simple Practical Exercise for Leaders

Catalyst Entity
ADVANCING IMPLEMENTATION OF NEW MOBILITY SYSTEMS GLOBALLY

+ the industry + enterprise that supplies them)

UNITED STATES
Ann Arbor MI
Benton Harbor MI
Dearborn MI
Detroit MI
Fort Bragg NC
Greenville NC
Mystic Connecticut
Los Angeles CA
Lansing MI
Pasadena CA
Portland OR
Washington DC

ASIA
Bangalore India
Beijing China
Changwon Korea
Chennai India
Cochin India
Delhi India
Manila Philippines

EUROPE
Muenster Germany
Warsaw Poland

SOUTH AMERICA
Ermelino Matarazzo Brazil
Quito Ecuador
Rio De Janeiro Brazil
Sao Paulo Brazil
Santiago Chile

AFRICA
Cape Town South Africa

PLATFORMS; TECH TRANSFER; RESEARCH; EDUCATION; GLOBAL LEARNING
TYPICAL TRANSPORTATION MEETING

0:00 - 1:40

Agenda: What Isn’t Working

1:40 - 1:50

Solutions Laundry List

1:50 - 2:00

Jockeying, quick attempts at prioritization according to vested interests

Attendance: Usual Suspects

Adjourn
SMART SYSTEMS SESSIONS

Multi-Modal System: Focus on People Door-to-Door

1. **CONVENING** – The Crucial & Often Under-Rated First Step (not just the usual suspects – public private innovation)

2. **MAPPING** – Engaging & Tangible Catalyst for Transformation

3. **PILOTING & ROLL-OUT** – Adapting, Scaling & Application

4. **MOVING MINDS** – A new language, a new narrative

5. (Bonus) **SMART NETWORK** for shared learning & action
CONVENING
Beijing Region

MAPPING & IMPLEMENTING
METRO MANILA
RIO
DE
JANEIRO
✓ Linking train, metro, bus, ferry, auto, parking, 2 wheelers
✓ Linked to commercial, entertainment, tourism, lifestyle
✓ 70% of people need not enter city (larger hubs gateways to grid of smaller connect points)
✓ Transform economy & lifestyle
✓ Sustainable – supported by real estate elements
WASHINGTON D.C.
CHENNAI, INDIA

Linking design, value capture, cycles, auto rickshaws, pedestrians, local business & new technologies (e.g. Mapunity, Cisco, Ashok, through CII)

-East-West and Suburban connectivity is weak.
-BRT, Mobility Hubs provide missing links in the network of Metro Rail & MRTS.
DESIGN PROTOTYPES
DESIGN PROTOTYPES
ANTICIPATED & UNANTICIPATED BENEFITS

Focus on people door to door
Sparks both immediate & long term solutions
Cost effective (by optimizing)
Supports local employment & economic benefits
Is sustainable
Enhances Resilience
Is not rocket science
Reinforces the Local Mobility Eco-System
(public-private innovation)
etc.
✅ New Integration Models
  ✅ New Technologies
  ✅ New Service Models
  ✅ New Business Models
  ✅ New Spatial Models
  ✅ New Eco-Systems
  ✅ Public Private Innovation
  ✅ New Skills & Jobs
  ✅ New Policy Models
  ✅ New Narratives
More than meets the eye
(beyond NOX, VOX, SOX, CO2, water etc.
to embrace obesity, health access, demographics, job access, QoL, noise, safety, security, social net...)

More than Moving People –
also GOODS and LESS

It’s about the SYSTEM not just the vehicle or technology
(Chinese medicine; Syllogism)

It’s about the user not the technology
(Use cases door to door; ends + means)

Connected Solutions take a village
(of sectors and players and citizens)
ENDS & MEANS
(a cautionary note)

Ends = Goals (the Light)
HEALTH; Quality of Life; Access to Needs;
Sustainable Environment;
Equitable Society; Vital Economy etc.

Means = Enablers (the Lightbulb)
Mobility; Technology; Business Models; Physical Planning; Policy; Marketing; Culture etc.
NEW NARRATIVES

For People / Users / Customers
For Decision Makers

Inform Responsive Innovation: Design & Delivery

Inform Marketing
MOVING MINDS:

THE FUTURE:

PREDICTION

OR CREATION?
IMPORTANT NEXT STEPS: For Health AND Mobility

Connect the Dots

Move the Economy

Move Minds

(Together -- Carpe Diem!)